1. NAME OF THE VETERINARY MEDICINAL PRODUCT

Pimodine 5 mg/ml Oral Suspension for Dogs

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Each ml contains:

Active substances:

Pimobendan 5 mg

Excipients:

Qualitative composition of excipients and other constituents	**Quantitative composition if that information is essential for proper administration of the veterinary medicinal product**
Sodium benzoate (E211)	1.5 mg
Hydroxypropylcellulose	
Macrogol 300	
Citric acid anhydrous	
Xanthan gum	
Glycerol	
Microcrystalline cellulose and carmellose sodium	
Disodium phosphate dihydrate	
Sodium dihydrogen phosphate dihydrate	
Roast beef flavour	
Purified water	

A white to off-white suspension.

3. CLINICAL INFORMATION

3.1 Target species

Dogs.

3.2 Indications for use for each target species

For the treatment of canine congestive heart failure originating from valvular insufficiency (mitral and/or tricuspid regurgitation) or dilated cardiomyopathy (DCM).

3.3 Contraindications

Do not use pimobendan in cases of hypertrophic cardiomyopathies or in clinical conditions in which an improvement in cardiac output cannot be achieved for functional or anatomical reasons (e.g. aortic stenosis).

Do not use in cases of severely impaired liver function, as pimobendan is mainly metabolised by the liver.
Do not use in cases of hypersensitivity to the active substance or to any of the excipients.

3.4 Special warnings

None.

3.5 Special precautions for use

Special precautions for safe use in the target species:

If the product is administered to diabetic dogs, blood glucose levels should be carefully monitored.
Monitoring of cardiac function and morphology is recommended in animals treated with pimobendan.

Special precautions to be taken by the person administering the veterinary medicinal product to animals:

People with known hypersensitivity to pimobendan, sodium benzoate, or any other excipients should avoid contact with the veterinary medicinal product.
This veterinary medicinal product may cause skin or eye irritation. Avoid contact with skin and eyes. In case of contact with the eyes or spillage onto the skin, immediately rinse thoroughly with water.
Wash hands after use.
Do not eat, drink, or smoke while handling the product.
Accidental ingestion, especially by a child, may lead to the occurrence of tachycardia, orthostatic hypotension, flushing of the face and headaches.
To avoid accidental ingestion, do not leave a filled syringe unattended and store the bottle and used syringe in the original carton to prevent children from getting access to the veterinary medicinal product.
Close the bottle tightly with the cap directly after removal of the required amount of suspension. The veterinary medicinal product must be used and kept out of sight and reach of children.
In case of accidental ingestion, seek medical advice immediately and show the package leaflet or the label to the physician.

Special precautions for the protection of the environment:

Not applicable.

3.6 Adverse events

Rare (1 to 10 animals / 10 000 animals treated):	Increased heart rate[1,3] Vomiting[1], Diarrhoea[2] Anorexia[2], Lethargy[2] Heart valve disorder[4,5,6]
Very rare (<1 animal / 10 000 animals treated, including isolated reports):	Mucosa petechiae[5], haemorrhage (subcutaneous)[5]

[1]These effects are dose-dependent and can be avoided by reducing the dose.
[2]Transient.
[3]Due to a moderate positive chronotropic effect.
[4]Observed during chronic pimobendan treatment in dogs with mitral valve disease.
[5]A causal relationship with pimobendan has not been clearly established, signs disappear when the treatment is withdrawn.
[6]Increase in mitral valve regurgitation. Associated with jet-lesions.

Reporting adverse events is important. It allows continuous safety monitoring of a veterinary medicinal product. Reports should be sent, preferably via a veterinarian, to either the marketing authorisation holder or its local representative or the national competent authority via the national reporting system. See the package leaflet for respective contact details.

3.7 Use during pregnancy, lactation or lay

The safety of the veterinary medicinal product has not been established during pregnancy and lactation.

Pregnancy and lactation:

Laboratory studies in rats and rabbits on pimobendan have not produced any evidence of foetotoxic effects and embryotoxic effects only occurred at maternotoxic doses. Laboratory studies in rats have shown that pimobendan is excreted into milk.
Use only according to the benefit-risk assessment by the responsible veterinarian.

3.8 Interaction with other medicinal products and other forms of interaction

The pimobendan-induced increase in contractility of the heart is attenuated in the presence of the calcium antagonists verapamil and diltiazem and the β-antagonist propranolol.
In pharmacological studies no interaction between the cardiac glycoside ouabain (strophanthin) and pimobendan was detected.

3.9 Administration routes and dosage

Oral use.

The veterinary medicinal product should be shaken well for 30 seconds before dosing.
To ensure a correct dosage, body weight should be determined as accurately as possible.

The veterinary medicinal product should be administered orally at a dose of 0.2 mg to 0.6 mg pimobendan/kg bodyweight per day. The daily dose should be divided into two equal doses (i.e. 0.1 mg to 0.3 mg pimobendan/kg bodyweight, equivalent to 0.2 ml to 0.6 ml of product per 10 kg bodyweight) administered approximately 12 hours apart. Each dose should be given directly into the mouth on an empty stomach, and at least one hour before feeding using one of the dosing syringes provided.

In cases of mild congestive heart failure, a daily dose at the lower end of the dose range (i.e. 0.1 mg/kg administered twice daily) may be adequate. If, however, a clear response is not observed within one week, the dosage should be raised. The maximum recommended dose is up to 0.3 mg/kg/dose administered twice daily.
The maintenance dose should be individually adjusted by the responsible veterinarian according to the severity of the disease. The dose can then be amended accordingly depending on clinical response.
Do not exceed the recommended dose range.

The following dosing table can be used as a guide to determining the dose in ml that corresponds to 0.25 mg/kg twice daily dose:

Weight of Dog (kg)	0.25 mg/kg Dose – to be given **twice daily 12 hours apart (ml)**
2	**0.1**
3	**0.15**
4	**0.2**

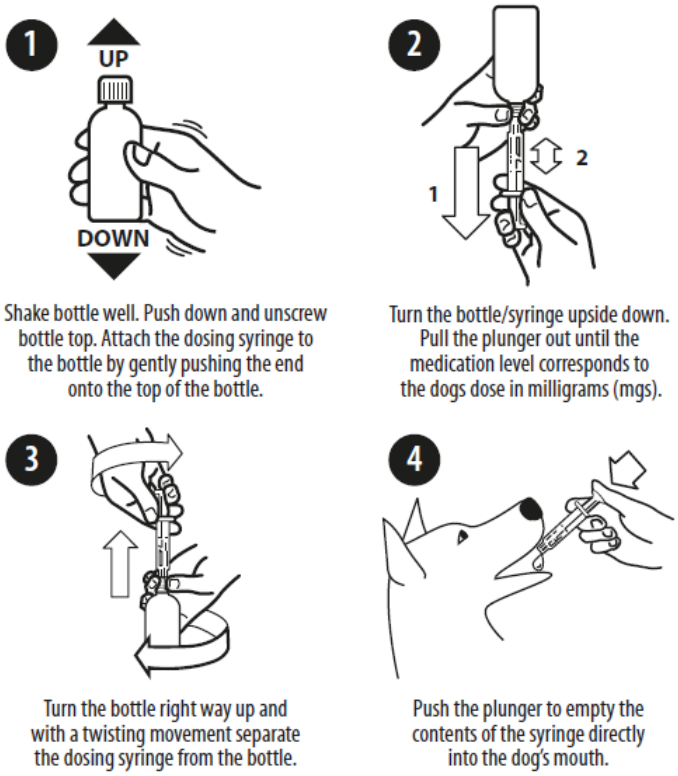
5	**0.25**
6	**0.3**
8	**0.4**
10	**0.5**
12	**0.6**
14	**0.7**
15	**0.75**
16	**0.8**
18	**0.9**
20	**1.0**
22	**1.1**
24	**1.2**
26	**1.3**
28	**1.4**
30	**1.5**
32	**1.6**
34	**1.7**
36	**1.8**
38	**1.9**
40	**2.0**

The veterinary medicinal product may be combined with a diuretic treatment, e.g. furosemide.

The veterinary medicinal product should be given using the appropriate measuring syringe(s).
There are 2 measuring syringes provided in the package. The 1 ml syringe has a ml dosing scale (0.1 ml to 1 ml) and can be used to accurately dose dogs up to 20 kg at a dose rate of 0.25 mg/kg twice daily. The 5 ml syringe also has a ml dosing scale (0.5 ml to 5 ml) and can be used to dose larger dogs up to 100 kg at a dose rate of 0.25 mg/kg twice daily.
In cases where more than 25 mg (5 ml) is required for a single dose, the relevant size syringe should be used to measure the remainder of the dose to be administered.

For a dose of 0.1 mg/kg, the 1 ml syringe is not appropriate for dogs weighing less than 5 kg and the 5 ml syringe is not appropriate for dogs weighing less than 25 kg.

The syringes are used as follows:



To avoid contamination, use the syringe(s) provided in the pack to administer only this oral suspension. The used syringe(s) should be stored with the veterinary medicinal product in the original carton.
After administration, replace and close the cap tightly.
If required, clean the syringe(s) by wiping with a dry tissue. If a syringe clogs, rinse using water without removing the plunger and wipe the outside of the syringe dry with a clean tissue. The contaminated tissue/cloth should be disposed of.

3.10 Symptoms of overdose (and where applicable, emergency procedures and antidotes)

An overdose may cause a positive chronotropic effect, vomiting, apathy, ataxia, heart murmurs or hypotension. In this situation, the dosage should be reduced, and appropriate symptomatic treatment should be initiated.
In prolonged exposure (6 months) of healthy beagle dogs at 3 and 5 times the recommended dose, mitral valve thickening and left ventricular hypertrophy were observed in some dogs. These changes are of pharmacodynamic origin.

3.11 Special restrictions for use and special conditions for use, including restrictions on the use of antimicrobial and antiparasitic veterinary medicinal products in order to limit the risk of development of resistance

Not applicable.

3.12 Withdrawal periods

Not applicable.

4. PHARMACOLOGICAL INFORMATION

4.1 ATCvet code :

QC01CE90.

4.2 Pharmacodynamics

Pimobendan, a benzimidazole-pyridazinone derivative, is a non-sympathomimetic, non-glycoside inotropic substance with potent vasodilatative properties.
Pimobendan exerts its stimulatory myocardial effect by a dual mechanism of action: increases in calcium sensitivity of cardiac myofilaments and inhibition of phosphodiesterase (type III). It also exhibits a vasodilatory action through an inhibitory action on phosphodiesterase III activity.
When used in cases of symptomatic valvular insufficiency in conjunction with furosemide, the product has been shown to improve the quality of life and extend life expectancy in treated dogs.
When used in a limited number of cases of symptomatic dilated cardiomyopathy in conjunction with furosemide, enalapril and digoxin, the product has been shown to improve the quality of life and to extend life expectancy in treated dogs.

4.3 Pharmacokinetics

Absorption
Following oral administration of the veterinary medicinal product, the absolute bioavailability of the active principle is 60 - 63%. Since this bioavailability is considerably reduced when pimobendan is administered with food or shortly thereafter, it is recommended to treat animals approximately 1 hour before feeding.
Following oral administration of a single dose of 0.31–0.48 mg pimobendan/kg body weight to fasted dogs, the mean maximum concentration (C_{max}) of ~45 ng/ml was reached in a median of 0.5 hours (T_{max} ranged from 0.17 to 1.5 hours) with a mean AUC_t of 44.41 ng/ml*hr.

Distribution
The volume of distribution is 2.6 l/kg, indicating that pimobendan is distributed readily into the tissues. The mean plasma protein binding is 93%.

Metabolism
The compound is oxidatively demethylated to its major active metabolite (UD-CG 212). Further metabolic pathways are phase II conjugates of UD-CG-212, in essence glucuronides and sulphates.

Elimination
The plasma elimination half-life of pimobendan is 0.5 ± 0.2 hours. Almost the entire dose is eliminated via faeces.

5. PHARMACEUTICAL PARTICULARS

5.1 Major incompatibilities

In the absence of compatibility studies, this veterinary medicinal product must not be mixed with other veterinary medicinal products.

5.2 Shelf life

Shelf life of the 100 ml bottle as packaged for sale: 2 years.
Shelf life of the 30 ml bottle as packaged for sale: 18 months.
Shelf life after first opening the 100 ml immediate packaging: 6 months.
Shelf life after first opening the 30 ml immediate packaging: 3 months.

5.3 Special precautions for storage

This veterinary medicinal product does not require any special temperature storage conditions.

Store in the original container.

Keep the bottle tightly closed.

5.4 Nature and composition of immediate packaging

The veterinary medicinal product is presented in amber polyethylene terephthalate (PET) plastic multi-dose bottles of 30 ml and 100 ml fill volume pack sizes, sealed with a polyethylene screw neck dropper cap (containing a low-density polyethylene (LDPE) insert). Two polyethylene/polypropylene measuring syringes with high-density polyethylene (HDPE) plunger and polypropylene (PP) barrel (1 ml and 5 ml), are supplied with each bottle.

Carton box containing 1x 30 ml bottle, a 1 ml and a 5 ml syringe.
Carton box containing 1x 100 ml bottle, a 1 ml and a 5 ml syringe.

Not all pack sizes may be marketed.

5.5 Special precautions for the disposal of unused veterinary medicinal products or waste materials derived from the use of such products

Medicines should not be disposed of via wastewater or household waste.

Use take-back schemes for the disposal of any unused veterinary medicinal product or waste materials derived thereof in accordance with local requirements and with any national collection systems applicable to the veterinary medicinal product concerned.

6. NAME OF THE MARKETING AUTHORISATION HOLDER

Norbrook Laboratories (Ireland) Limited

7. MARKETING AUTHORISATION NUMBER(S)

VPA22664/153/001

8. DATE OF FIRST AUTHORISATION

9. DATE OF THE LAST REVISION OF THE SUMMARY OF THE PRODUCT CHARACTERISTICS

10. CLASSIFICATION OF VETERINARY MEDICINAL PRODUCTS

Veterinary medicinal product subject to prescription.

Detailed information on this veterinary medicinal product is available in the Union Product Database (https://medicines.health.europa.eu/veterinary).